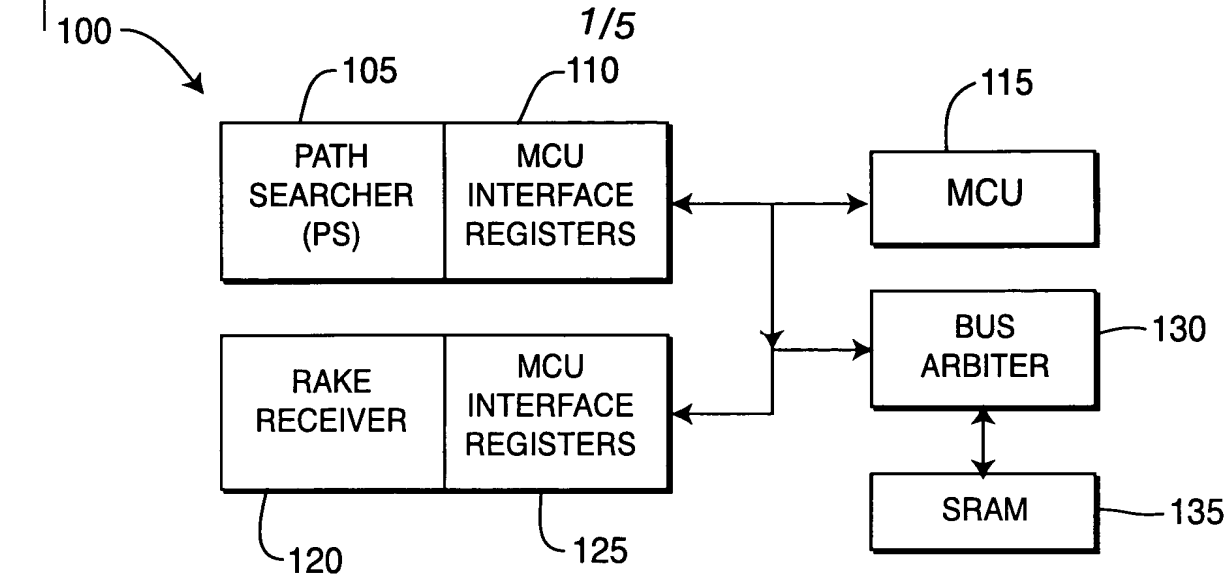
100
105
110
115
PATH SEARCHER (PS)
MCU INTERFACE REGISTERS
MCU
BUS ARBITER
130
RAKE RECEIVER
MCU INTERFACE REGISTERS
SRAM
135
120
125

FIG. 1

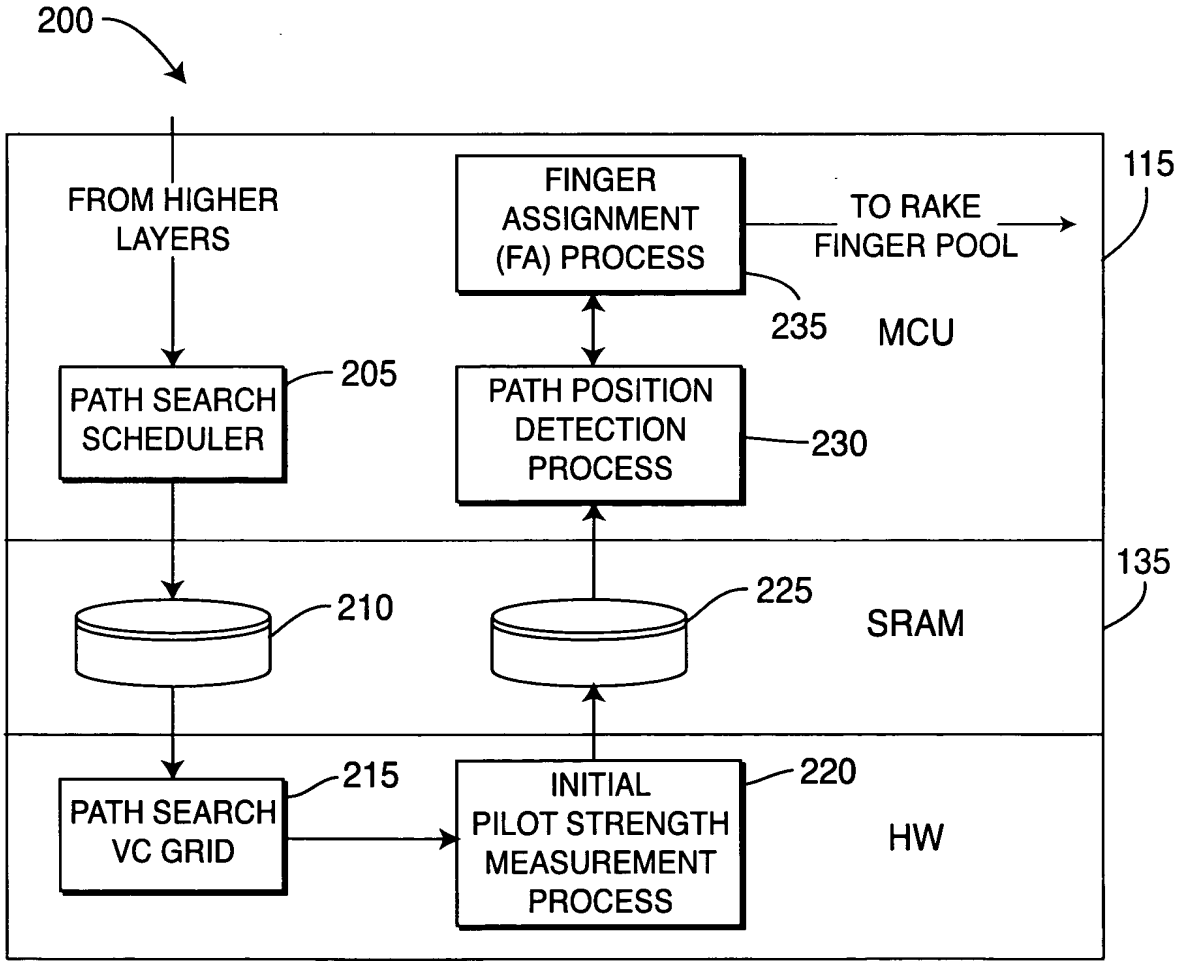
200
FROM HIGHER LAYERS
FINGER ASSIGNMENT (FA) PROCESS
TO RAKE FINGER POOL
115
235
MCU
PATH SEARCH SCHEDULER
205
PATH POSITION DETECTION PROCESS
230
135
210
225
SRAM
215
INITIAL PILOT STRENGTH MEASUREMENT PROCESS
220
PATH SEARCH VC GRID
HW

FIG. 2

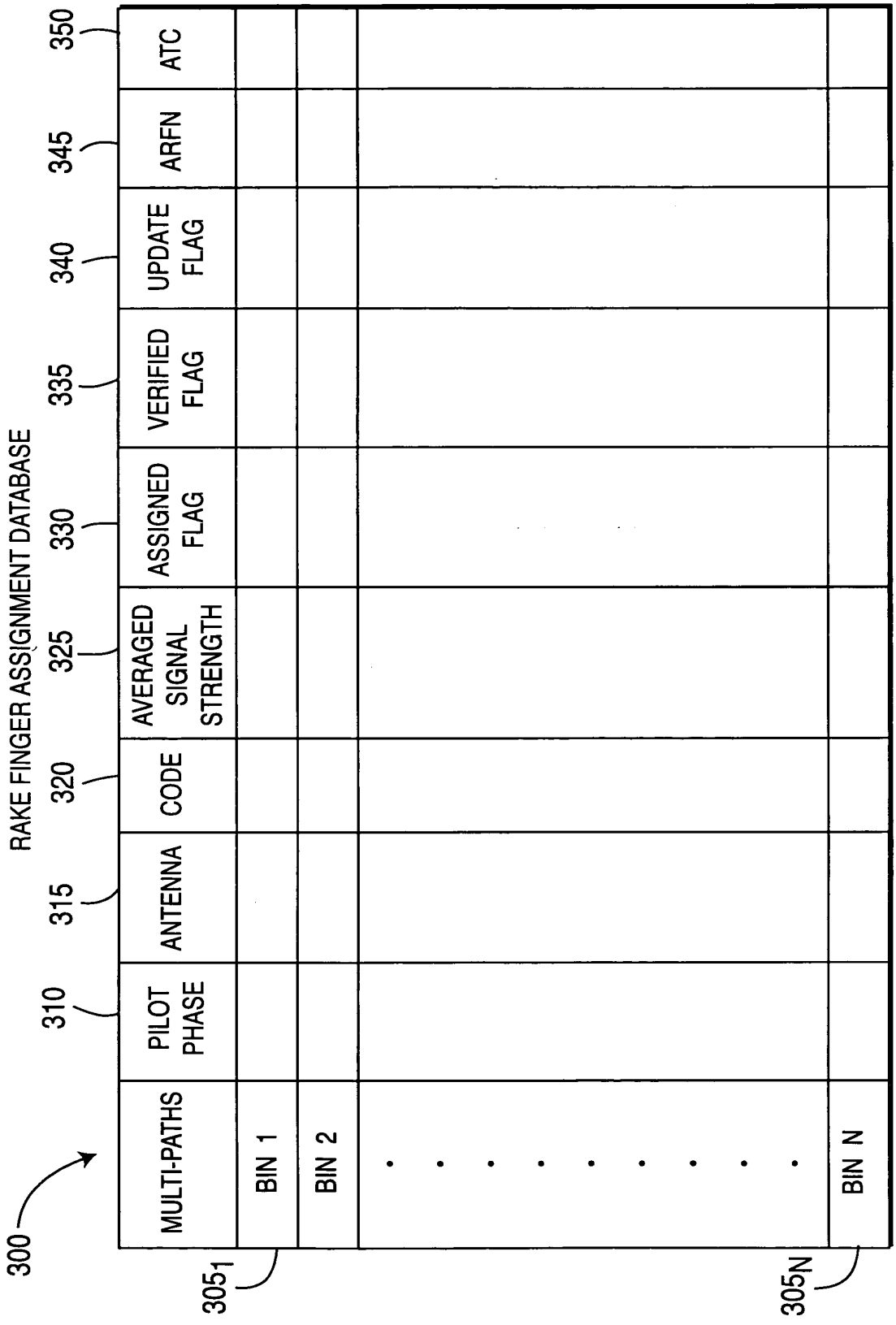
RAKE FINGER ASSIGNMENT DATABASE
300
MULTI-PATHS
PILOT PHASE
310
ANTENNA
315
CODE
320
AVERAGED SIGNAL STRENGTH
325
ASSIGNED FLAG
330
VERIFIED FLAG
335
UPDATE FLAG
340
ARFN
345
ATC
350
BIN 1
BIN 2
BIN N
305₁
305N

FIG. 3

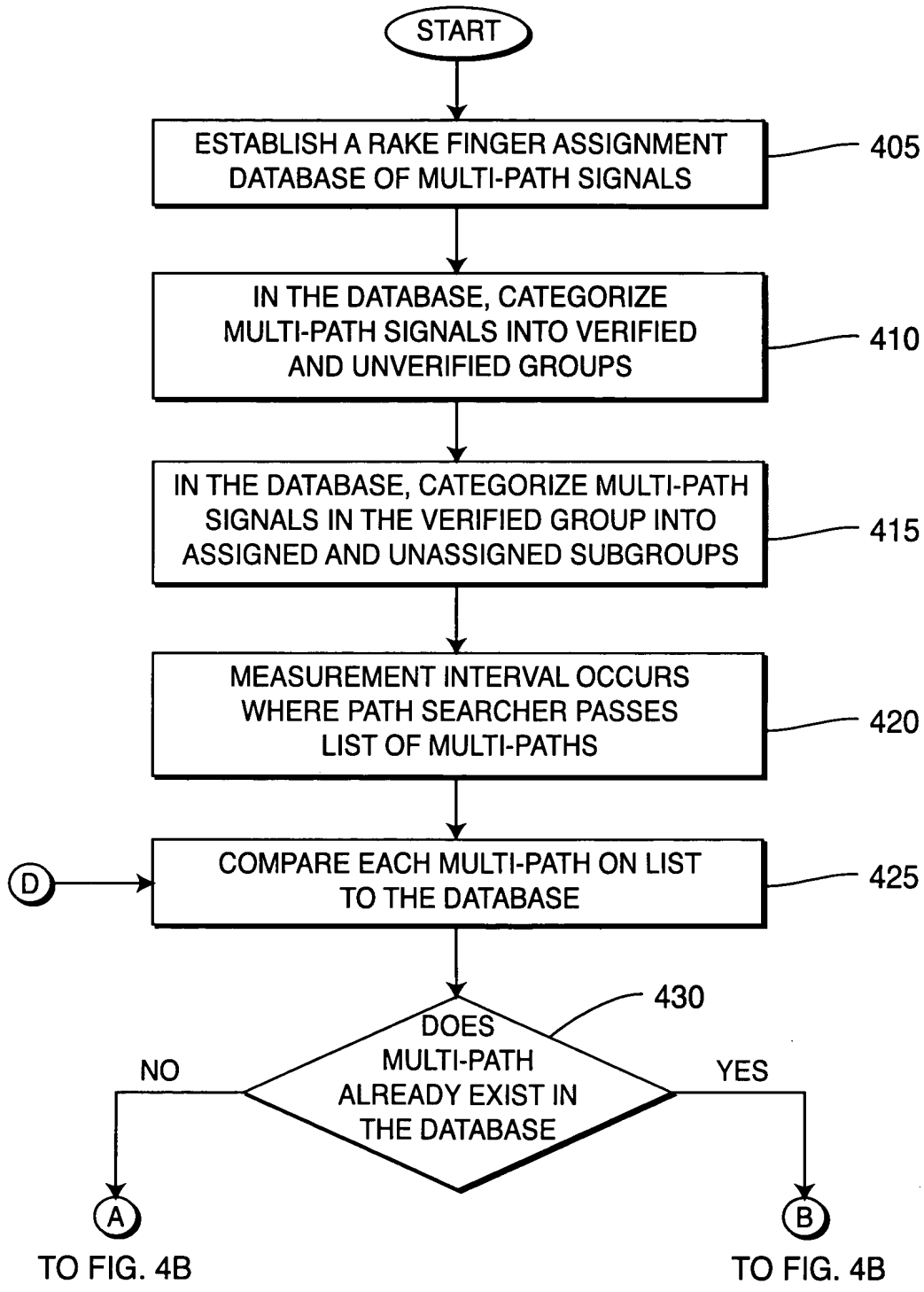
400
START
ESTABLISH A RAKE FINGER ASSIGNMENT DATABASE OF MULTI-PATH SIGNALS
405
IN THE DATABASE, CATEGORIZE MULTI-PATH SIGNALS INTO VERIFIED AND UNVERIFIED GROUPS
410
IN THE DATABASE, CATEGORIZE MULTI-PATH SIGNALS IN THE VERIFIED GROUP INTO ASSIGNED AND UNASSIGNED SUBGROUPS
415
MEASUREMENT INTERVAL OCCURS WHERE PATH SEARCHER PASSES LIST OF MULTI-PATHS
420
D
COMPARE EACH MULTI-PATH ON LIST TO THE DATABASE
425
430
DOES MULTI-PATH ALREADY EXIST IN THE DATABASE
NO
YES
A
B
TO FIG. 4B
TO FIG. 4B

FIG. 4A

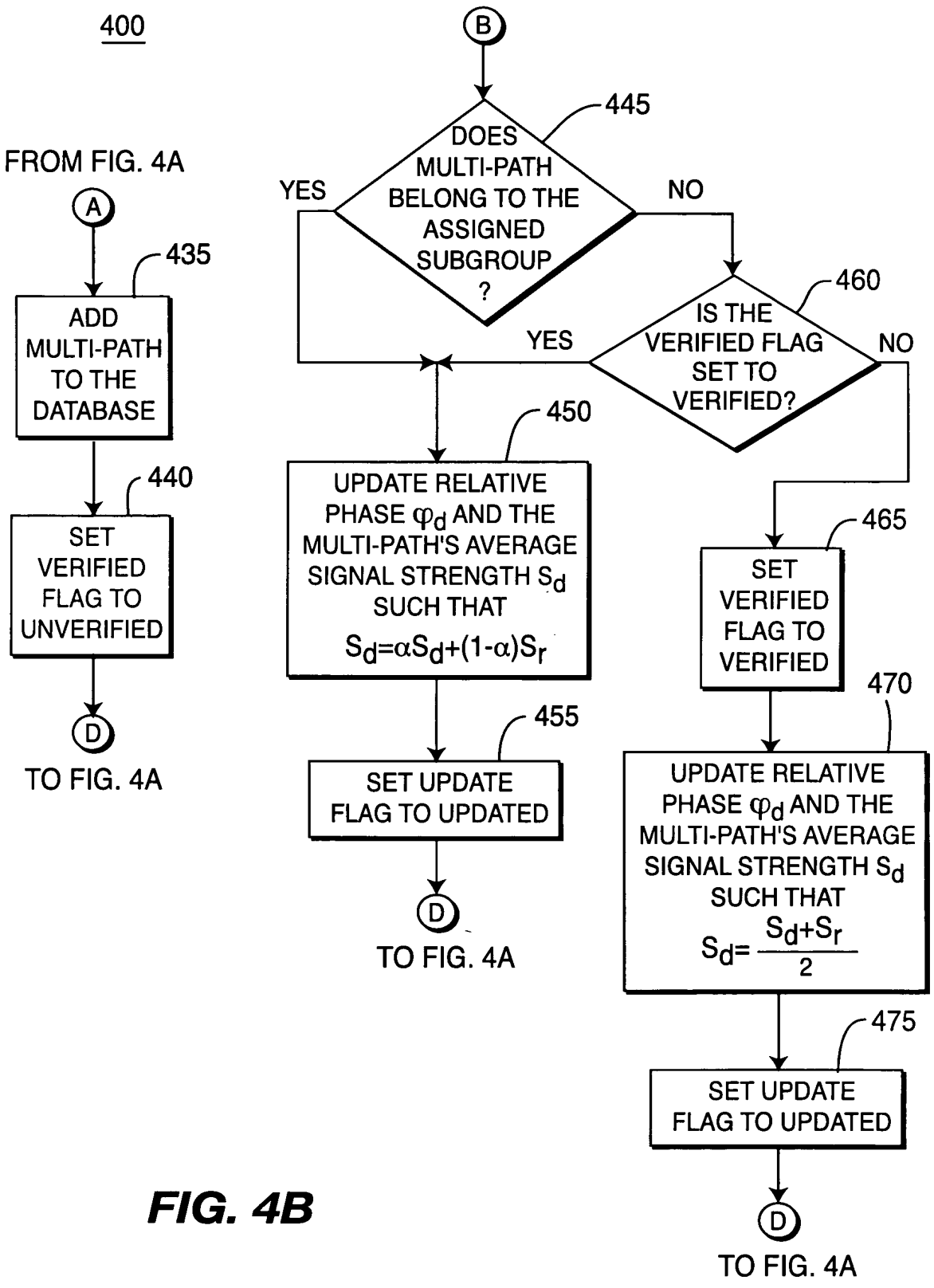
400
FROM FIG. 4A
A
435
ADD MULTI-PATH TO THE DATABASE
440
SET VERIFIED FLAG TO UNVERIFIED
D
TO FIG. 4A
B
445
DOES MULTI-PATH BELONG TO THE ASSIGNED SUBGROUP ?
YES
NO
460
IS THE VERIFIED FLAG SET TO VERIFIED?
YES
NO
450
UPDATE RELATIVE PHASE φd AND THE MULTI-PATH'S AVERAGE SIGNAL STRENGTH Sd SUCH THAT
Sd=αSd+(1-α)Sr
455
SET UPDATE FLAG TO UPDATED
D
TO FIG. 4A
465
SET VERIFIED FLAG TO VERIFIED
470
UPDATE RELATIVE PHASE φd AND THE MULTI-PATH'S AVERAGE SIGNAL STRENGTH Sd SUCH THAT
Sd= (Sd+Sr)/2
475
SET UPDATE FLAG TO UPDATED
D
TO FIG. 4A

FIG. 4B

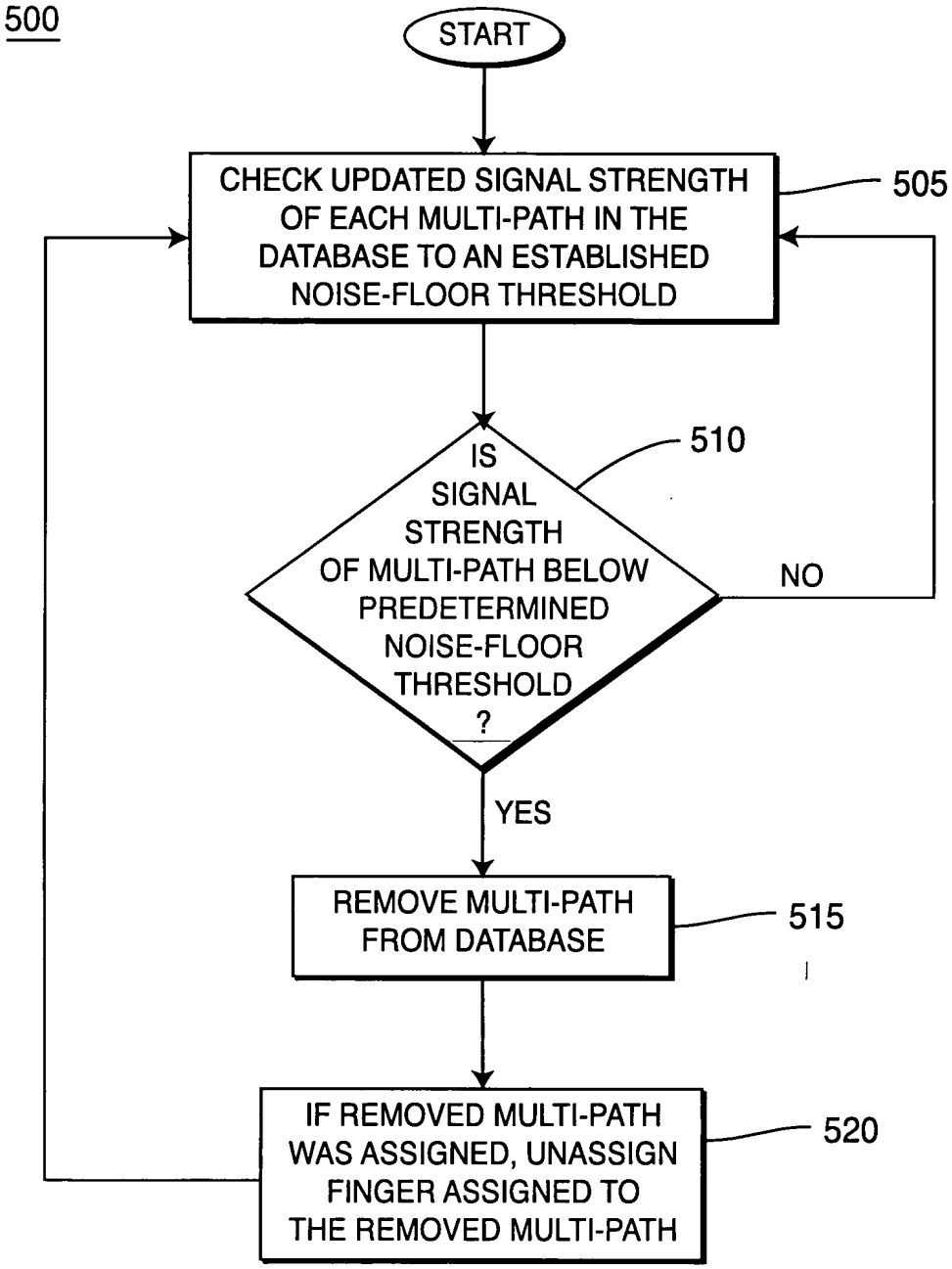
500
START
CHECK UPDATED SIGNAL STRENGTH OF EACH MULTI-PATH IN THE DATABASE TO AN ESTABLISHED NOISE-FLOOR THRESHOLD
505
IS SIGNAL STRENGTH OF MULTI-PATH BELOW PREDETERMINED NOISE-FLOOR THRESHOLD ?
510
NO
YES
REMOVE MULTI-PATH FROM DATABASE
515
IF REMOVED MULTI-PATH WAS ASSIGNED, UNASSIGN FINGER ASSIGNED TO THE REMOVED MULTI-PATH
520

FIG. 5